

## WHAT IS CLAIMED IS:

1. A process for the production of printed substrates, in which a printing paste comprising a) a matrix-forming condensate based on polyorganosiloxanes which is obtained  
5 by the sol-gel process, and b) one or more coloring, luminescent, conductive and/or catalytically active fillers, is applied imagewise to the substrate and densified by heat treatment, said process being characterized in that densification is carried out at a  
10 temperature which is lower than the glass transition temperature of the matrix forming.
2. A process according to Claim 1 wherein the densification is carried out at a temperature which is at least 200°C lower than the glass transition temperature of the matrix  
15 forming.
3. A process according to Claim 1 or 2 wherein the printing paste is applied to the substrate by screen printing or pad printing.
4. A process according to one of Claims 1 to 3 wherein the  
20 substrate used is a glass, glass-ceramic or ceramic substrate which has optionally been provided with a conductive coating.
5. A process according to one of Claims 1 to 4 wherein  
25 conductor tracks or spacers, in particular for display technology and for photovoltaic applications, or decorative patterns are printed on.

6. A composition comprising
- a) a matrix-forming condensate based on polyorganosiloxanes which is obtained by the sol-gel process, obtainable by partial hydrolysis and polycondensation of
- 5 (A) at least one organosilane of the general formula (I)
- $$R_nSiX_{(4-n)} \quad (I)$$
- in which the radicals X are identical or different and are hydrolysable groups or hydroxyl groups, R is identical or different and is a non-hydrolysable
- 10 radical, and n is 1, 2 or 3, or an oligomer derived therefrom,
- (B) optionally at least one hydrolysable silane of the general formula (II)
- $$SiX_4 \quad (II)$$
- 15 in which X is as defined above, and
- (C) optionally one or more compounds of glass- or ceramic-forming elements,
- b) one or more coloring, luminescent, conductive and/or catalytically active fillers,
- 20 c) one or more high-boiling organic solvents having a boiling point of at least 150°C, and
- d) one or more rheology control agents.
7. A composition according to Claim 6 wherein the condensate has been prepared using at least 40 mol% of the
- 25 organosilane of the general formula (I).
8. A composition according to Claim 6 or 7 wherein one or more fillers from the group consisting of dyes, colored pigments, photo- or electro-luminescent substances,

electrically conductive or photoconductive materials and catalytically active fillers are present.

9. A composition according to one of Claims 6 to 8 wherein the conductive filler comprises particles of gold, silver, copper, nickel, tungsten, molybdenum, tin oxide, indium tin oxide, lead zirconate titanate or graphite.
10. A composition according to one of Claims 6 to 9 wherein it is essentially free from glass particles.

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